

# SCAN SYSTEM AND METHOD FOR SCANNING IMAGES TO A REMOTE LOCATION

## BACKGROUND OF THE INVENTION

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### FIELD OF THE INVENTION

The present invention generally relates to computers and software, and more particularly, to a scan system and method for providing users the ability to quickly and efficiently transfer documents and images from a scanner to a remote location.

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### DESCRIPTION OF RELATED ART

Currently, scanning multiple pages with a flatbed scanner into an application program is fairly invasive. Typically, a user must raise the lid of the scanner and place a single document page on the scanning surface, or place the document in an automatic document feeder. Then, the user must launch a scanning application, navigate through a maze of scanning options, and finally transport the resulting scanned document into a target folder. If this folder is on a remote server, the user must then first connect and log-on to the remote server before downloading the resulting scanned document.

A key difficulty with saving image documents to a server on the Internet or Intranet, is that of simplicity for novice users. Typically, the prior solution for providing web page construction of scanned documents requires the user to (1) scan the document (2) connect to a remote server; (3) log-on to the remote server; (4) manually specify the destination folder; and (5) manually transfer the document to the remote server.

Needless to say, each of the previous steps is a complicated and time-consuming task for even the most experienced scanner owner.

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Different problems occur with other types of image-acquiring devices. These other types of image-acquiring devices include, for example, but are not limited to, digital cameras, digital videocassette recorder equipment, and the like. The problems for digital cameras, digital video cassette recorder equipment, and the like, include

5 requiring proper adapters and cables for connecting to a target folder on a computer system, maintaining the correct version of device software for image execution, and the like, in addition to the problems mentioned above.

Thus, a heretofore unaddressed need exists in the industry to address the aforementioned deficiencies and inadequacies.

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### **SUMMARY OF THE INVENTION**

The present invention is generally directed to a scan system and method for providing users the ability to quickly and efficiently transfer documents and images from a scanner to a remote location.

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Briefly described, in architecture, the scan system can be implemented as follows. Generally, the scan system includes a scanner and a transferring mechanism. The scanner is provided to generate a scanned document or image. A transferring mechanism initiates the scanning of the document or image, connects to a destination location and transfers the scanned document or image to the destination location for

20 storage.

The present invention can also be viewed as providing a method for scanning documents directly to a destination location. In this regard, the method can be broadly summarized by the following steps: (1) selecting a scanner icon; (2) accociatng the icon

with the destination location; (3) scanning a document or image using a scanner; and (4) automatically transferring the scanned document to the destination location for storage.

Other features and advantages of the present invention will become apparent to one with skill in the art upon examination of the following drawings and detailed  
5 description. It is intended that all such additional features and advantages be included herein within the scope of the present invention.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

The accompanying drawings incorporated in and forming a part of the  
10 specification illustrate several aspects of the present invention, and together with the description serve to explain the principles of the invention. In the drawings:

FIG. 1 is a block diagram of various possible scan systems of the present invention.

FIG. 2 is a block diagram further illustrating in greater detail the possible scan  
15 systems of the present invention.

FIG. 3A is a block diagram illustrating a scan system of FIGs. 1 and 2, and a browser program situated within a computer readable medium, for example, in a user computer system that is used in connection with the scan system.

FIG. 3B is a block diagram illustrating the scan system of FIGs. 1 and 2 situated  
20 within a stand-alone scanner.

FIG. 4 is a flow chart of the scan system for the user computer system or stand-alone scanner of the present invention, as shown in respective FIGs. 3A and 3B.

FIG. 5 is a flow chart of the automatic document feeder user interface process for the scan system of the present invention, on both the computer-controlled and stand-alone scanner, as shown in FIG. 4.

FIG. 6 is a flow chart of the document drag-and-drop process for the scan system of the present invention, on both the computer-controlled and stand-alone scanner, as shown in FIG. 4.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

The present invention will now be described in detail with specific reference to the drawings. While the invention will be described in connection with these drawings, there is no intent to limit it to the embodiment or embodiments disclosed therein. On the contrary, the intent is to cover all alternatives, modifications, and equivalents included within the spirit and scope of the invention as defined by the appended claims.

The present invention provides the functionality of a single drag and drop solution that enables a user to initiate scanning a document on a scanner, connecting to a remote location and saving the scanned document in a folder with just one move of the mouse.

Turning now to the drawings, FIG. 1 is a block diagram of possible system configurations that illustrate the flexibility and platform independence of the present invention. While the scan system of the invention can take many forms, the diagram of FIG. 1 illustrates a plurality of scan devices 16 and 21, that are directly connected to a network 32, for example, but not limited to, a dial-in, LAN, WAN, PSTN, Intranet and Internet communication links (18 and 24). Each of the scan systems in FIG. 1 is

uniquely illustrated to emphasize that scan systems may be comprised of diverse hardware platforms.

As can be seen from FIG. 1, the scan systems may be comprised of a scanner 22 that is connected to a computer 21. This allows the computer 21 to execute a scan  
5 system that interacts with scanner 22.

It is also illustrated in FIG. 1 that a stand-alone scanner 16 may be directly connected to a local server 26 via a communication link 18. Network 18 may be, for example, an Ethernet type network (*e.g.*, 10 BASE 2, 10 BASE 5, 10 BSAF, 10 BASE-T, base band network, a coaxial cable, a dial-in, LAN, WAN, PSTN, Intranet or  
10 Internet.

Illustrated in FIG. 2 is a more detailed figure showing that a scanner 16 may be connected directly to a user computer 21 or with an optional keyboard and display directly connected via a link 18 to a network 32. The stand-alone scanner 16 includes the scan system 100 that is specifically designed to operate on stand-alone scanner  
15 systems.

Some stand-alone scanners 16 can provide for scanned documents or images directly to a LAN, WAN, Intranet or Internet, local server site 26 or remote server site 31. The stand-alone scanner 16 may include a keypad and a limited display. In those instances where the stand-alone scanner 16 does not include an optional keypad or  
20 display, the user presets the destination network site. The identification of this preset destination network site can be downloaded via the communication links 18 or 23, or programmed utilizing standard methods.

As illustrated in FIG. 3A, a computer system that employs the scan system 100 may also include a browser program 53 (*e.g.*, Netscape, Internet Explorer, or other

browser type program) for use in accessing locations on a network 32. The browser program 53 provides for a variety of hardware platforms. Browsers are most commonly recognized for their utility for accessing information over the Internet 32. A browser is a device or platform that allows a user to view a variety of service collections.

5 In the example illustrated, the browser program 53 retrieves information from a remote server 31 or local server 26, using HTTP. The browser program 53 then interprets HTML code, formats the code, and displays the interpreted result on a workstation display, such as display 46. The browser program 53 resides in computer memory 51 and accesses communication facilities modem 47 to bring resources from  
10 the network 32 to the user's browser using the modem. In order to find a resource, the user should know the network location (*i.e.*, site) of the resource denoted by a network location identifier or URL. These identifiers are often cryptic, following very complex schemes and formats in their naming conventions.

Computer systems identify, access, and process these resources desired by a user  
15 by using the processor 41, storage device 42, and memory 51 with an operating system 52 and browser program 53. The processor accepts data from memory 51 and storage 42 over the local interface 43, for example, one or more buses. Direction from the user can be signaled by using one or more input devices, for example, mouse 44 and keyboard 45, as well as by actuating a pushbutton on the front of the scanner itself. The  
20 actions input and result output are displayed on the display terminal 46. Also illustrated in FIG. 3A is the scan system 100 of the present invention situated in a user's computer system 12. This scan system 100 will be further explained hereafter with regard to Figs. 4-6.

Illustrated in FIG. 3B is a block diagram of a stand-alone scanner 16 including the scanning application 62. Scanner 16 usually includes a processor (not shown) and a memory (not shown) that utilizes a scanning application 62 to control the scanner and an optical input device (not shown). The processor accepts data from the optical input device and memory over a bus (not shown). Direction from the user can be signaled by using the input devices such as a keypad 65, as well as by actuating a pushbutton (not shown) on the front of the scanner itself. The actions input and result output may be displayed on the optional display terminal 66. The stand-alone scanner 16 also includes a modem or network card 67 to establish communication with the remote server 31 on network 32. Scanner 16 can also be implemented utilizing non-processor circuitry.

Also illustrated in FIG. 3B is the scan system 100 of the present invention situated in the stand-alone scanner 16. This scan system 100 resides in hardware, software or firmware of the stand-alone scanner 16. The scan system 100 will be further explained hereafter with regard to FIGs. 4-6.

With regard to FIG. 4, illustrated is an example of a scan system 100 executing on a computer system 12 or stand-alone scanner 16. The first step of scan system 100 is to initialize itself at step 101. If the scan system 100 is implemented using a browser program 53 (FIG. 3A), scan system 100 is initialized in that environment. The scan system 100 then directs the scanner 16 or 22 to initialize the scanning application 62 (FIG. 3B) at step 101. The scanning application 62 is the general purpose scanning software that enables a scanning system 16 or 22 to acquire a digitized image. The scanning application 62 is utilized to control the scanner and the optical input device to create the digitized image.

At step 103, the scan system 100 determines whether an automatic document feeder (ADF) is connected and ready. If it is determined at step 103 that the ADF is not connected or is not ready, the scan system 100 then proceeds to step 107 to proceed with the common scanning user interface of the scanning application 62. If it is  
 5 determined at step 103 that the ADF is connected and ready, the scan system 100 executes the display ADF user interface process at step 104. The display ADF user interface process is herein defined in further detail with regard to FIG. 5.

After execution of the display ADF user interface process 104, the scan system 100 then executes the document drag and drop process at step 105. The document drag  
 10 and drop process is herein defined in further detail with regard to FIG. 6. After executing the document drag and drop process at step 105, the scan application is terminated on the scanner system at step 106. At step 109, the scan system 100 exits from the stand alone scanner or on the computer.

Illustrated in FIG. 5 is a flow diagram example of the display user interface  
 15 process 120. The display user interface process 120 is first initialized at step 121. At step 22, the display user interface process 120 displays a list of available servers, and an icon or picture representing the automatic document feeder or the document image to be scanned. The list of available servers can be either a text list in a graphical user interface system or can comprise icons representative of the available destination  
 20 servers.

At step 123 the display user interface process 120 then determines whether the user has chosen a server from the available list of servers. If it is determined at step 123 that the user has not chosen a server from the list of available servers, the display user interface process 120 then utilizes the default server as the destination location at step



124. After setting up the default server or if the user did select a server from the list of available servers, the display user interface process 120 then establishes a connection at step 125, with either the selected server, or if no server was selected at step 123, the default server.

5           Next, at step 126, the display user interface process 120 determines whether the connection to the destination server attempted at step 125 was completed successfully. If the attempt to connect to the server at step 125 was not successful, the display user interface process displays an error message and switches to scanning off-line at step 127. After displaying the error message, the display user interface process 120 exits at  
10       step 139.

          If it is determined at step 126 that the connection attempted at step 125 was successful, the display user interface process 120 then queries the destination server for any personal and available folders for storage at step 131. At step 132, the display user interface process 120 displays the icons representing available folders. At step 133, the  
15       display user interface process 120 indicates that the automatic document feeder is ready for use. The display user interface process 120 then exits at step 139.

          Illustrated in FIG. 6 is an example of a flow diagram of the document drag and drop process 140. First, at step 141, the user initializes the document drag and drop process 140 by dragging an icon representing the automatic document feeder or  
20       document into one of the personal folder icons. The icons representing the automatic document feeder or documents were previously displayed at step 132 (FIG. 5). At step 142, the document drag and drop process 140 then commands the scanner to scan the document.

At step 143, it is determined whether it is necessary to convert the scanned document or image into a different document format. If it is not necessary to convert the scanned document into a different document format type, the document drag and drop process 140 proceeds to step 145. If it is necessary to convert the scanned document into a different document format, the document drag and drop process 140 converts the scanned document to the different document format at step 144.

Next, the document drag and drop process 140 transfers the scanned document to a remote server at step 145. This transfer preferably utilizes the FTP protocol to transfer the document, however, other methods of transferring the document are feasible. After transferring the document to the remote server at step 145, the documents are then stored in the selected folder. At step 146, the document drag and drop process 140 determines whether the transfer was successful. If the transfer at step 145 was successful, the drag and drop process 140 displays a transfer success message at step 152. If the transfer attempted at step 145 was determined not to be successful, the document drag and drop process 140 then displays a transfer error message at step 151.

After displaying either a transfer error or success message at step 151 and 152, respectively, the document drag and drop process 140 then displays a message indicating that the ADF automatic document feeder is now ready for continued use at step 153. The display message preferably utilizes the scrolling text to display the message, however, other methods of displaying the message are feasible. The document drop and drag process 140 then exits at step 159.

The previously defined flow charts show the architecture, functionality, and operation of a possible implementation of scan system 100 for scanning images to a

remote location. In the preferred embodiment, the scan system 100 comprises an ordered listing of executable instructions for implementing logical functions and can be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that can fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions. In the context of this document, a "computer-readable medium" can be any means that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium can be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a nonexhaustive list) of the computer-readable medium would include the following: an electrical connection (electronic) having one or more wires, a portable computer diskette (magnetic), a random access memory (RAM) (magnetic), a read-only memory (ROM) (magnetic), an erasable programmable read-only memory (EPROM or Flash memory) (magnetic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

In this regard, each block represents a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified

logical function(s). It should also be noted that in some alternative implementations, the functions noted in the blocks may occur out of the order. For example, blocks shown in succession may in fact be executed substantially concurrently or the blocks may sometimes be executed in the reverse order, depending upon the functionality  
5 involved, as described herein above.

The foregoing description has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obvious modifications or variations are possible in light of the above teachings. The embodiment or embodiments discussed were chosen and described to  
10 provide the best illustration of the principles of the invention and its practical application to thereby enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the appended claims when interpreted in accordance with  
15 the breadth to which they are fairly and legally entitled.